(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number
WO 2004/025920 A1

(51) International Patent Classification[7]: H04L 29/06, 12/56

(21) International Application Number: PCT/EP2003/008210

(22) International Filing Date: 26 June 2003 (26.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02368098.6 12 September 2002 (12.09.2002) EP

(71) Applicant *(for all designated States except MC, US)*: INTERNATIONAL BUSINESS MACHINES CORPORATION [US/US]; New Orchard Road, Armonk, NJ 10504 (US).

(71) Applicant *(for MC only)*: COMPAGNIE IBM FRANCE [FR/FR]; Tour Descartes, 2, avenue Gambetta, La Défense 5, F-92400 Courbevoie (FR).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: VAN LUNTEREN, Jan [NL/CH]; Buerglistrasse 12, CH-8134 Adliswil (CH).

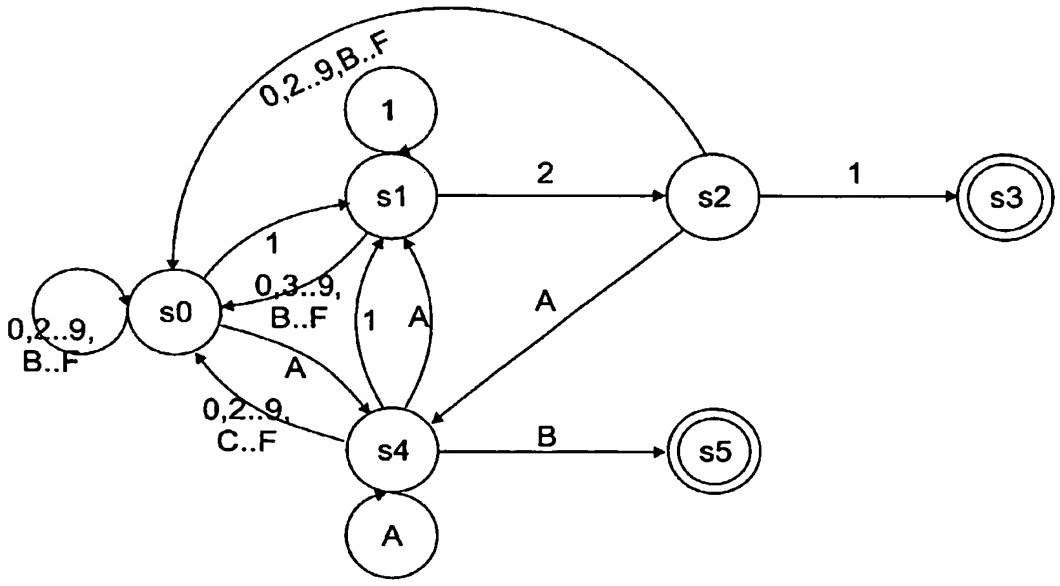
(74) Agent: DE PENA, Alain; Compagnie IBM France, Direction de la Propriété Intellectuelle, F-06610 La Gaude (FR).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A METHOD AND APPARATUS FOR DEEP PACKET PROCESSING



(57) Abstract: A method and apparatus for deep packet processing including a parsing and a searching method supported by a data structure storing the state-transition rules in the state-transition rule tables of a programmable state machine for parsing. The state-transition rule table is then compressed using the BaRT compression algorithm. Each transition rule comprises a test value, a test mask and a next state field. In a second embodiment the state-transition rule table is split into more than one state-transition rule table corresponding to disjoints state spaces, thus allowing more flexibility in the use of storage space. Finally a parsing and searching method can be implemented using the same hardware. The searching and parsing methods can be implemented alternatively or in any combination at wire-speed.

WO 2004/025920 A1

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv)) for US only*

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.